CANCER OF THE RECTUM*

By DUDLEY SMITH, M. D.
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DISCUSSION *by Stanley H. Mentzer, M. D., San Francisco; John W. Cline, M. D., San Francisco; Clarence G. Toland, M. D., Los Angeles.*

THE classical studies of W. Ernest Miles of London upon the modes of extension of cancer of the rectum, and especially upon the zones of lymphatic spread, have demonstrated to the medical profession the futility of the older methods of operation. In closing his first Lettsomian lecture before the Medical Society of London, February 19, 1932, he said:

"It will be seen that the ischiorectal fat, the levatores ani muscles, the pelvic peritoneum, and the pelvic mesocolon are the tissues which are chiefly concerned in the spread of cancer of the rectum. Pathology teaches us that they may be the seat of metastatic deposits even when the growth in the rectum is in a clinically early stage, and that unless these highly dangerous tissues are completely removed in every case in which an operation for the removal of the cancerous rectum is undertaken, postoperative recurrences will be a rule to which there will be few exceptions."

The medical profession, and indeed the laity, owe a deep debt of gratitude to Mr. Miles for the outstanding work he has done in this field, and anyone who talks on cancer of the rectum must necessarily lean heavily upon his research. He has proved that it is necessary to do a radical block dissection, which includes all of the three zones of spread, the downward, the upward, and the lateral, if recurrence is to be avoided in any large percentage of the cases operated upon.

DIAGNOSIS

Of late years these lesions have been discovered, on the whole, earlier than in the past because the laity and the medical profession have been given a large amount of information upon this subject by many writers, outstanding among whom is Daniel F. Jones of Boston, but there is still much to be done before the medical profession as a whole can point with pride to the early recognition of cancer of the rectum in cases coming under its care.

That the physician may be on his guard let us consider what are the early symptoms of cancer of the large bowel. Any change in bowel habit or sensation should cause the physician to suspect trouble. The rectum is a silent area and a growth usually gives no symptoms for the first six months, but even during this time there may be slight irritation or change in the character or frequency of the bowel movements. During this early period there may be a little discomfort in the rectum or a little more frequent urge to defecation. When the lesion is at the rectosigmoid junction, rapid increase in constipation is a not infrequent symptom because the lumen of the gut is small and the growth constricts early. Distention of gas and colicky pains are also frequently complained of. If the abdominal wall be thin, peristaltic waves will probably be seen. When blood appears in the bowel movement it should be an imperative command to the physician to immediately find its source.

If hemorrhoids which are bleeding or might bleed have been found, the physician cannot be absolved from blame if he does not investigate higher up and make sure that there is no other lesion from which the blood is coming. It is all too common an error to take it for granted that blood comes from hemorrhoids and prescribe some suppositories without examination. Students should be taught and the medical profession should learn to know that blood from the rectum should be considered as coming from a malignant growth until such is ruled out.

Cancer of the rectum can be discovered by digital examination alone in a very large percentage of cases, and this procedure should certainly never be neglected. The physician should heed the dictum of a well-known professor of medicine who said to his students: "Put your finger in the rectum, or you may later find you have put your foot in it."

Diagnosis of cancer of the rectum and rectosigmoid is easily made in 100 per cent of the cases, but this diagnosis cannot be made by laboratory examination of the stools and rarely by barium enema and x-ray unless the condition is far advanced and constriction present. The proper routine of examination is: first, digital; second, anoscopic; third, proctoscopic; and then if the lesion is above the range of the proctoscope a barium enema and x-ray examination will almost always reveal it. It is a mistake to order a barium enema first and then proctoscopic examination. This should be reversed. Lesions above seven inches are usually revealed by the x-ray, but no lesion below seven inches from the anus is likely to be discovered unless it is far advanced and stricture is present.

TREATMENT

Permanent colostomy is essential to success in the operative treatment of cancer of the rectum, no matter what operation is decided upon for the individual case. Unfortunately the laity and a large part of the medical profession have an exaggerated fear of colostomy. I have heard doctors in medical meetings say that they would rather die than have a colostomy. When such a statement has been made I have always felt that the person who made it knew very little about a properly constructed colostomy and much less about its proper care. As a matter of fact a properly constructed, well placed and properly cared for colostomy causes the patient comparatively little inconvenience and this statement is based upon the opinions of a large number of patients who have such colostomies. When I explain to a patient that a permanent colostomy will be necessary I am in the habit of referring him to one or two patients who have had the operation and are living happy and contented lives. I tell the patient that these others have come over the trail before him and can tell him precisely how little trouble

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and inconvenience he will encounter on the way. I rarely have a patient refuse the operation after talking with those who have had it.

Three types of operation are now in general use, viz.:

1. Posterior resection, preceded by colostomy.
2. Abdominoperineal resection in one stage.
3. Abdominoperineal resection in two or three stages.

Posterior resection done ten days or two weeks after colostomy, is considered the operation of choice by many surgeons because it has shown a lower primary mortality than the abdominoperineal resection. The great disadvantage of the operation is that recurrence will follow in a much larger percentage of cases than in the abdominoperineal procedure. In my opinion, it should be restricted to patients who are thought to be unfitted to withstand the more radical procedure by reason of advanced age or poor condition from other causes.

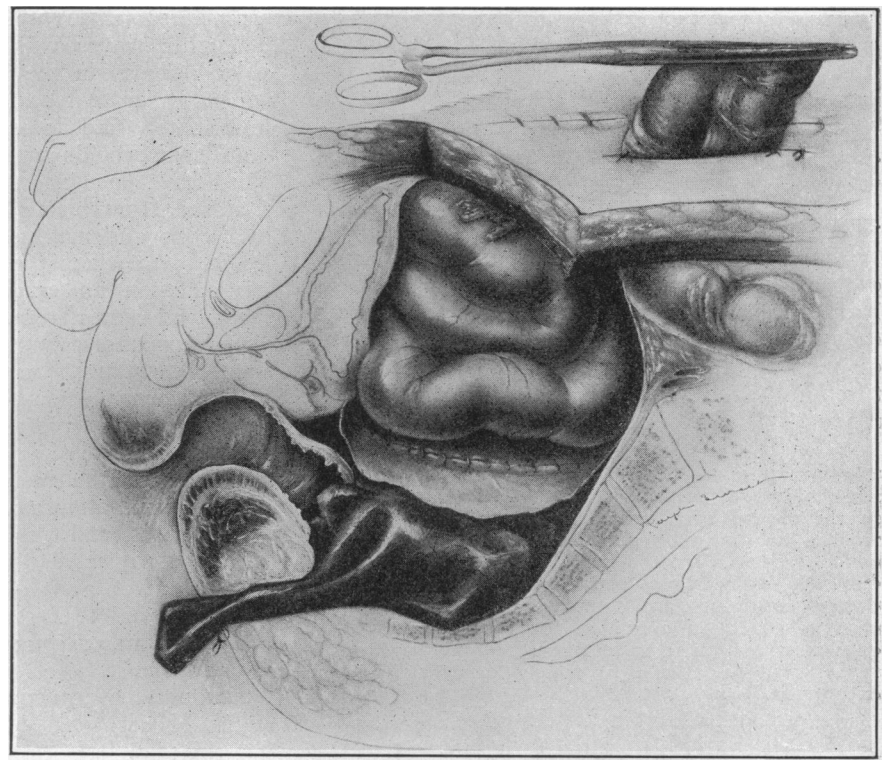

Fig. 1.—The pelvic peritoneum has been closed over the rubber dam which has been folded over the stump of the rectum and a corner of the rubber dam drawn out through an incision alongside the tip of the coccyx for drainage. Author's clamp on the stump of the rectum is shown through the rubber.

Few, if any, surgeons will disagree with the statement that the abdominoperineal resection with permanent colostomy should be done whenever possible. Mr. Miles has proved that a much smaller percentage of recurrences will follow this operation in which the lower sigmoid and the sigmoid mesentery are entirely removed than will follow the operation of posterior resection, in which operation the dangerous tissues of the mesosigmoid cannot be removed. If the primary mortality in the abdominoperineal resection could be reduced to that of the operation of posterior resection following preliminary colostomy, all surgeons would agree that the more radical procedure should be used. The effort, therefore, in the last few years has been to reduce the primary mortality of the more extensive operation. I believe that this has been largely accomplished. Even the one-stage abdominoperineal resection has been accomplished with a primary mortality comparable to the less extensive operation, by some surgeons. I believe, however, that the two-stage procedure will result in a lower primary mortality in the hands of the average surgeon.

The chief objection urged against the two-stage procedure has been that good drainage could not be secured and that during the interval between the first and second stage a large amount of purulent toxic material would accumulate in the pelvis and gush out when the posterior resection was done at the second stage. To this lack of drainage could be attributed much of the toxemia, peritonitis, and therefore, mortality following the first stage. This has been entirely avoided by the type of drainage I have used for the past three years, which is shown in the illustration. This drainage was suggested to me by Dr. Stanley Mentzer, who should have the credit for it.

At the present time the two-stage procedure should be accomplished with a primary mortality of less than 10 per cent. The factors which have contributed to the lowering of the primary mortality in the radical abdominoperineal procedure have been the use of spinal anesthesia, more careful preliminary preparation of the patient, transfusion, vaccination against peritonitis, and good drainage.

For patients who are in poor condition and have suffered from marked stasis and obstruction a distinct forward step has been accomplished by Lahey[1] and also by Bartlett[2] and Rankin[3] in their recently reported operations, wherein a preliminary single-barrelled colostomy is done at the first stage, the patient allowed to return home and build up in general health before the major procedure of abdominoperineal resection is attempted. These operations differ in technique but accomplish the same purpose, and the second stage in the Lahey operation may be divided into two stages if the condition of the patient seems to preclude removing the entire rectum and sigmoid at the second stage. These operations have the disadvantage of opening the abdomen twice, but the primary mor-

tality reported would indicate that this is not a serious objection. There can be no question that it is an advantage and a safeguard to secure proper functioning of the colostomy prior to the major procedure in patients who are in poor condition.

INOPERABLE CASES

Under the heading of inoperable cases I include not only those in which metastases have taken place that cannot be removed and the local growth is so far advanced that complete removal is not feasible, but also those cases in which the condition of the patient's health, because of age or general condition, precludes a radical procedure. In such cases much comfort will be given the patient by an early colostomy. I am in entire accord with Miles,[4] who says: "From my experience of these cases I am convinced that as soon as carcinoma of the rectum is found to be inoperable, every day lost before resorting to colostomy is a day to the bad."

Following colostomy, deep x-ray therapy, and the application of radium are often very valuable palliative procedures.

I prefer for these cases the Sistrunk[5] type of colostomy in which the two arms of the gut are separated by an inch of the entire abdominal wall.

If these inoperable cases are in sufficiently good condition and the local growth has not advanced to the point of complete fixation, the question should be carefully considered whether the primary growth should be removed even though there be metastasis to the liver or extensive glandular involvement. I am in accord with the views of Jones on this subject. He believes that we are justified in removing the local growth under these circumstances if the patient can be given six months of comfort. As a matter of fact this procedure will result in more than a year of comfort in many cases. One of my patients who had a large metastatic nodule an inch and a half in diameter in the liver at the time of the abdominoperineal resection gained forty pounds, was in perfect health for twenty-three months and was only sick about six weeks prior to his death. Jones told me of a patient of his who lived eight years under similar circumstances. There is no question that the patient will be much more comfortable if it is possible to remove the local growth.

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DISCUSSION

STANLEY H. MENTZER, M. D. (450 Sutter Street, San Francisco).—Dr. Dudley Smith's article presents a sane and hopeful outlook for the patient suffering from cancer of the rectum.

There are many choices in the operative attack upon cancer of the rectum, but I have found none so successful as the operation which Doctor Smith has initiated. It has been my good fortune to do a few cases myself and to help Doctor Smith with twenty-two operations of his own. I feel quite certain that as others become familiar with Doctor Smith's technique, his method will become preferable for those who are engaged in rectal surgery.

The method of drainage which is now used consists of a large rubber dam, almost half a yard square, which is draped about the proximal portion of the distal segment of the rectum before the peritoneal floor is made. One or more corners of this tent-like covering are then brought out through an incision made lateral to the coccyx. In this way the desquamation of tissue which follows ligation of the superior hemorrhoidal artery is adequately drained by gravity, and possible leakage from the rectal stump is enclosed by the rubber dam tent so that it is virtually impossible for retroperitoneal dissection of exudates to occur. Furthermore, defects in the newly created peritoneal floor are not serious, for they become sealed over before any discharge can escape from below the rubber drain.

The basic principles of Doctor Smith's operation are simple and surgically sound, and when his method is mastered, resection of the rectum for cancer according to his plan is rapid, thorough, and unusually safe.

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JOHN W. CLINE, M. D. (490 Post Street, San Francisco).—Doctor Smith has given a clear presentation of the present status of carcinoma of the rectum. I agree with his opinions and would like to emphasize a few of the points he has made.

A large proportion of the cases of carcinoma of the rectum coming to the attention of the surgeon have advanced beyond the stage where the disease can be successfully dealt with by surgical methods. A small part of this responsibility rests with the layman for not consulting his physician concerning early symptoms of rectal disease. A greater responsibility rests upon the members of the medical profession. We must make every effort to impress upon the public the fact that bleeding from the rectum is a sign of disease for which a physician should be consulted without delay. The medical profession has also been justly criticized for the laxity of its methods of examination. Too frequently a history is obtained which tells of the patient being treated for hemorrhoids without thorough investigation. Since the responsibility for medical publicity and adequate examination rests upon us we cannot avoid censure for the large number of cases reaching an inoperable stage.

Rarely an attempt to preserve the sphincter ani may be justified, but it is far better to sacrifice the sphincter than the chances of the patient to avoid recurrence. For practical purposes it may be said that adequate treatment of carcinoma of the rectum demands a permanent colostomy.

Frequently patients have a horror of abdominal colostomy. Occasionally the disagreeable features of colostomy have been unduly impressed upon the patient by his physician. An abdominal colostomy properly constructed and well cared for is the best substitute for a natural anus which has been developed. It possesses many advantages which the perineal artificial anus lacks.

The choice of operation must be largely decided by the operability of the growth, as determined by the degree of local fixation and the existence of demonstrable metastases, and the ability of the patient to withstand a surgical procedure of considerable magnitude.

Simple colostomy, particularly with separation of the proximal and distal ends, will give the patient

with an inoperable lesion a considerable amount of relief.

Colostomy, plus posterior resection, should be the operation of choice for patients whose general condition is such that they could not be expected to withstand a combined abdominoperineal resection. It is also a satisfactory operation for very low growths.

From the standpoint of total eradication of the disease the combined abdominoperineal resection in one stage is probably the operation of choice. It is a surgical procedure of first magnitude and should be undertaken only with patients in excellent general condition.

A combined abdominoperineal resection in two stages is the best alternative and is the operation of choice in the vast majority of cases. It has many variations. The early high mortality attributed to it was due to the infection occurring beneath the newly constructed pelvic floor resulting from the deprivation of blood supply to the portion of the colon to be removed. The type of drainage suggested by Doctor Smith, and subsequently advocated by Miles, answers most of the criticisms of the two-stage procedure. I have had an opportunity to follow several cases in which this type of drainage has been used and agree with Doctor Smith that it adequately takes care of the element of infection. I believe that it will do more to maintain the mortality of this operation at a low level than any other single factor in technique.

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CLARENCE G. TOLAND, M. D. (902 Wilshire Medical Building, Los Angeles).—The satisfactory surgical management of tumors of the left colon, particularly of the rectosigmoid and rectal area, has been and is a problem that has intrigued the interest of our best surgical minds. Not so many years ago the individual who was unfortunate enough to be afflicted with a malignant rectal growth was given little encouragement, and his prospects for the future were very dark indeed. Palliative procedures, such as a simple colostomy, were offered, and only occasionally was an attempt made completely to eradicate the neoplastic process by a posterior resection.

The colostomies were frequently so poorly placed and constructed that their care was a heavy burden to the patient, and more likely than not he shunned his friends and was ostracized from society.

The posterior resection was a formidable procedure, entailing a heavy mortality, and many cases suffered from the disability incident to excision of the coccyx and part of the sacrum. The percentage of early recurrence was high and on the whole the results were most discouraging.

With the advent of the combined abdominal and perineal resection the situation improved and as the technical difficulties have gradually been overcome we have been able to offer our patients a reasonable chance for a cure. The postoperative disability has been materially lessened, allowing the individual the pleasures of society and the normal pursuit of his occupation.

A number of operative procedures have been devised in accomplishing the abdominoperineal resection, and they all have merit, particularly when applied to selected cases. Perhaps in no other condition is the axiom "Fit the operation to the patient, and not the patient to the operation," so true as in cancer of the rectum. Dr. Dudley Smith has been a substantial contributor in this field, and I, personally, prefer the type of operation he advocates. The little clamps he has devised have greatly facilitated the resection and have enabled us to frequently perform the operation in one stage. The use of the cautery in the perineal stage of the excision has proved to be most satisfactory. When we think of patients with five-year cures who are able satisfactorily to follow exacting occupations such as teaching school or the ministry, we cannot but realize that definite progress has been made, and the men who have made this possible are to be congratulated.

CRANIOCEREBRAL INJURIES*

A STUDY OF TWELVE HUNDRED CASES

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DISCUSSION *by Howard W. Fleming, M. D., San Francisco; Cyril B. Courville, M. D., Los Angeles.*

DURING the past decade frequent reports of large series of head injuries, both with and without skull fracture, have appeared in the literature. These have been prompted by the rapidly increasing number of craniocerebral injuries incident to modern life. The compilation of such reports is tedious and exacting, but in clinical experience and judgment statistics of this sort can be of considerable value.

CLINICAL MATERIAL FOR THIS STUDY

The material here presented consists of 1200 consecutive cases of head injury admitted to the neurosurgical service of the Los Angeles County General Hospital from July, 1929, to January, 1931, a period of approximately eighteen months. Rand and Nielsen [1] (1925) reported a series of 171 cases of proved skull fracture taken from 580 consecutive cases covering a period of approximately forty-one months from the same service of this hospital. The comparison of 580 cases occurring in forty months to 1200 cases in eighteen months shows the great increase in number of head injuries, as they are now five times as common as was the case six years ago, if one can judge by comparing two series of patients admitted to the same hospital.

The patients in this series were admitted to the service upon the basis, either of a history of head injury with loss of consciousness, even if that was momentary, or because examination by the admitting physician revealed evidences of a recent cranial injury. Patients are not included who left the hospital within a few hours without having had an x-ray examination of the skull, the period of observation being of too short a duration for inclusion in this series. The only fatal cases which were not included were those who died before an adequate physical examination could be done. Ninety-seven and a half per cent of the patients in this series received x-ray study, the only exceptions being patients whose condition was too critical to permit of this procedure. Few, if any, other series of head injuries which were reviewed received as high a percentage of x-ray study. Postmortem examinations were done in practically all fatal cases, as they came under the coroner's jurisdiction. Doctors Wagner and Schaefer carried out these examinations and permitted detailed microscopic studies in many of the cases. It should be added that one of the neurosurgical staff was present at about one-third of the postmortem examinations. Only four cases of the series were not autopsied; three were cases of obvious cerebral hemorrhage, and the fourth a severely depressed skull fracture.

* From the Neurosurgical Service of Dr. Carl W. Rand, Los Angeles County General Hospital.

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